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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,431	06/29/2001	Henrik F. Bernheim	HAR66 823	5269
7590 Duane Morris LLP 1667 K Street, NW Suite 700 Washington, DC 20006			EXAMINER MURPHY, RHONDA L	
			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

09/893,431

**Applicant(s)**

BERNHEIM, HENRIK F.

**Examiner**

RHONDA MURPHY

**Art Unit**

2616

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 and 38-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 38-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This communication is responsive to the amendment filed on 3/6/08. Accordingly, claims 28-37 and 64-73 have been previously canceled and claims 1-27 and 38-63 are currently pending in this application.

### ***Response to Arguments***

1. Applicant's arguments filed 3/6/08 have been fully considered but they are not persuasive. Applicant argues Foster fails to disclose a bus structure. However, Examiner respectfully disagrees. Newton's Telecom Dictionary, 20<sup>th</sup> Edition, defines a bus as "an electrical connection which allows two or more wires or lines to be connected together." Figure 7 of the Foster reference illustrates a bus structure. The bus structure is shown as the communication lines between CPU 260 and modems 240 and 700. More specifically, the communication lines are connected from QAM modulator 731 and QAM demodulator 711 in modem 700 and QAM modulator 730 and QAM demodulator 710 in modem 240, to CPU 260. This bus structure is expandable and adapted to accept multiple modems to provide plural levels of communication capacity between the hub and the nodes (col. 10, lines 20-24).

2. Applicant also states Foster fails to teach the bus structure as being expandable without alteration to the communication controller. However, based on Examiner's interpretation of this limitation, it would have been obvious to one skilled in the art to realize the communication controller (CPU 260) will not be altered, since the additional

communication signal processors (modems 240/700) will inserted into the hub system that is already provisioned to expand capacity when the modems are added (col. 10, lines 20-24). Applicant has cited a passage from the Foster reference, col. 11, lines 6-13, describing requiring circuitry in the ODU controller 230 when adding multiple modems to IDU controller 250. Foster states the circuitry is required in the ODU controller 230, which is not the communication controller (CPU 260). The amended claim limitation recites "without alteration of the communication controller."

3. Therefore, Examiner's position is that all claimed limitations have been met. Therefore, the rejection has been maintained.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. In claims 1 and 38, last line, the limitation "without alteration of the communication controller" is unclear. It is unclear how the communication controller will not be altered.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 9 – 16, 18 – 22, 26, 27, 38, 46 – 53, 55 – 59 and 63 rejected under 35 U.S.C. 103(a) as being unpatentable over Foster, Jr. et al. (US 6,016,313).

**Regarding claims 1 and 38**, Foster teaches a point to multipoint communication system (Fig. 1, 100) for providing wireless communication between a hub (101) and plural remote nodes (150-152), wherein said communication system is adapted to provide plural levels of communication capacity between the hub and the plural remote nodes (col. 10, lines 20-24), said communication system comprising:

said plural nodes (Figs. 1 and 4; 150-152), each comprising: a remote wireless communication link interface (Fig. 4, antenna 420) for providing wireless communication with said hub (see Fig. 1); and an interface (480) operatively connected to one or more remote computer systems (LAN 490);

said hub comprising a plurality of wireless communication link interfaces (Fig. 2C; antennas 200) for providing wireless communication with said plural nodes (see Fig. 1); a first communication signal processor (modem 240) operatively connected to said plurality of wireless communication link interfaces (see Fig. 2C); a communication controller (Figs. 2C and 7; CPU 260) operatively connected to an external computer system (backbone 160); an expandable bus structure (Fig. 7, communication line

between CPU 260 and modems 240 and 700; hub system fully scalable to include any number of modems, col. 10, lines 20-24) operatively connected to said first communication signal processor (modem 240) and to said communication controller (CPU 260), wherein said bus structure is adapted to accept plural communication signal processors (modems 240 and 700) and operatively connect said plural communication signal processors to said communication controller to thereby provide plural levels of communication capacity between the hub and the plural nodes (col. 10, lines 20-24).

Foster fails to explicitly teach expanding the bus structure *without alteration of the communication controller*. However, it would have been obvious to one skilled in the art to realize the communication controller (CPU 260) will not be altered, since the additional communication signal processors (modems 240/700) will be inserted into the hub system that is already provisioned to expand capacity when the modems are added (col. 10, lines 20-24).

**Regarding claims 9 and 46**, Foster teaches said first communication signal processor comprising a modem (Fig. 2C, modem 240).

**Regarding claims 10 and 47**, Foster teaches a modem, but fails to explicitly disclose the modem as a multiport modem.

However, Examiner takes official notice that it is well known in the art for a modem to be a multiport modem, so as to provide multiple ports for communicating data.

**Regarding claims 11 and 48**, Foster teaches the modem capable of providing communications at multiple levels of information density (col. 7, lines 4-6).

**Regarding claims 12 and 49**, Foster teaches control signals controlling the level of information density (col. 7, lines 36-37), but fails to explicitly disclose the communication controller controlling the information density.

However, it would have been obvious for the communication controller to control the information density, since the controller sends control signals related to the transmission of data.

**Regarding claims 13 and 50**, Foster teaches each one of said plurality of wireless communication link interfaces comprising a radio including an antenna with a predetermined beamwidth to provide communications to a predetermined sector (col. 6, lines 8-13).

**Regarding claims 14 and 51**, Foster teaches radios operating using a common intermediate frequency (col. 11, lines 32-43) and ones of said radios operating using a radio frequency that is different than the radio frequency of the others of said radios (col. 7, lines 58-65).

**Regarding claims 15 and 52**, Foster teaches said radios operating in the millimeter frequency range (col. 5, lines 20-21).

**Regarding claims 16 and 53**, Foster teaches ones of said predetermined sectors operating using a communication channel that is different than the communication channels of the others of said predetermined sectors wherein said communication channels comprise a forward portion and a reverse portion (col. 6, lines 8-13; col. 8, lines 1-3).

**Regarding claims 18, 19, 20, 55, 56 and 57**, Foster teaches TDD, TDMA and FDMA channels (col. 3, lines 15-16).

**Regarding claims 21 and 58**, Foster teaches asymmetric time division duplexing (col. 24, lines 48-63).

**Regarding claims 22 and 59**, Foster teaches said asymmetry is dynamically adjustable as a function of the ratio of the forward portion and the reverse portion of the communication channel (col. 24, lines 48-63).

**Regarding claims 26 and 63**, Foster teaches the system comprising multiple hubs (Fig. 6, hubs 101 and 620).

**Regarding claim 27**, Foster teaches a hub (Fig. 1, 101) geographically located in a predetermined location and adapted to be operatively connected to a computer network (backbone 160) for the communication of bursty data between the computer network and the hub (col. 4, lines 43-54), said hub comprising:

- a plurality of wireless communication link interfaces (Fig. 2C; antennas 200) for providing wireless communication with said plural nodes (see Fig. 1);

- a first communication signal processor (modem 240) operatively connected to said plurality of wireless communication link interfaces (see Fig. 2C); and

- a communication controller (Fig. 2C and 7; CPU 260) operatively connected to said first communication signal processor (modem 240) and to said computer network (160; see Fig. 2C); and

- a plurality of nodes (Fig. 1 and 4; 150-152) each geographically spaced from said hub and adapted to be operatively connected to a computer network (LAN 120) other than



the computer network to which said hub is adapted to be connected for the communication of bursty data between the node and the computer network to which connected (see Fig. 1), each one of said plurality of nodes comprising:

a remote wireless communication link interface (Fig. 4, antenna 420) for providing wireless communication with said hub (see Fig. 1); and an interface (480) operatively connected to said computer network (LAN) other than the computer network to which said hub is adapted to be connected (see Fig. 1);

the improvement comprising a bus structure (Fig. 7, between CPU 260 and modems 240 and 700) operatively connected to said first communication signal processor (modem 240) and to said communication controller (CPU 260), wherein said bus structure is adapted to accept plural communication signal processors (modems 240 and 700) and operatively connect said plural communication signal processors to said communication controller to thereby provide plural levels of communication capacity between the hub and the plural nodes (col. 10, lines 20-24).

6. Claims 2, 3 – 8, 17, 23 – 25, 39 – 45, 54 and 60 – 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster, Jr. et al. (US 6,016,313) as applied to claims 1 and 38 above, and further in view of Carney (US 6,011,785).

**Regarding claims 2 and 39**, Foster teaches a plurality of wireless communication link interfaces, but fails to explicitly disclose the link interfaces adapted to be interchangeably connected to any one of a plurality of communication signal processors.

However, Carney teaches link interfaces being interchangeably connected to any one of a plurality of communication signal processors (col. 11, lines 17-27).

In view of this, it would have been obvious to one skilled in the art to modify Foster's system by interchanging the link interfaces with multiple signal processors, in order to provide a more adaptable connection to the processors.

**Regarding claims 3 and 40**, Foster teaches a second communication signal processor operatively connected to at least one of the plurality of wireless communication link interfaces and to said bus structure (Fig. 7). Foster fails to explicitly disclose at least one of the plurality of wireless communication link interfaces disconnected from said first communication signal processor so as to be connected to said second communication signal processor.

However, Carney teaches at least one wireless communication link interface (Fig. 1, antenna 11) disconnected from said first communication signal processor (DSP 18) so as to be connected to said second communication signal processor (col. 10, lines 46-54; wherein the DSPs are allocated as needed).

In view of this, it would have been obvious to one skilled in the art to disconnect a link interface from a first signal processor to connect to a second signal processor, so as to adjust to the change in system resources and provide communication via another signal processor.

**Regarding claims 4 and 41**, Foster teaches the addition of said second communication signal processor increasing the communication capacity between the hub and the plural

nodes (col. 11, lines 6-7). Foster fails to explicitly disclose the second signal processor substantially doubling the communication capacity.

However, it would have been obvious for the communication capacity to double, since the addition of signal processors increase the capacity to some degree; the degree being twice that of the current capacity.

**Regarding claims 5 and 42**, Foster teaches the plurality of wireless communication link interfaces establishes a wireless communication link with at least a one of the plural nodes (Figs. 1 and 2C) whereby each one of said wireless communication links is substantially independent of the others of said wireless communication links (col. 7, lines 48-56).

**Regarding claims 6 and 43**, Foster teaches the first and second communication signal processors and each of the plurality of wireless communication link interfaces operating using a common intermediate frequency (col. 11, lines 32-43).

**Regarding claims 7 and 44**, Foster teaches the communication controller capable of directing information from the external computer system to certain ones of the plural nodes by directing the information to the communication signal processors associated with the wireless communication link between the hub and said certain ones of the plural nodes (col. 13, lines 66-67; col. 14, lines 1-12).

**Regarding claims 8 and 45**, Foster teaches an external computer selected from the group consisting of: a public switched telephone network, a private network, a private branch exchange, a router, a fiber optic network, and the internet (col. 4, lines 47-54).

**Regarding claims 17 and 54,** Foster teaches communication channels, but fails to explicitly disclose the communication channel as a code division multiple access channel.

However, Carney discloses a CDMA communication channel (col. 4, lines 49-54). In view of this, it would have been obvious to one skilled in the art to include a CDMA channel, so as to provide communication by various forms of wireless interface standards.

**Regarding claims 23 and 60,** Foster teaches a plurality of communication signal processors (Fig. 7; modems 240 and 700) whereby each one of the plurality of communication signal processors is operatively connected to: a separate one of said plurality of wireless communication link interfaces (Fig. 8, antennas 200); and the bus structure (between CPU 260 and modems 240 and 700).

**Regarding claims 24 and 61,** Foster teaches the same limitations described above in the rejection of claims 5 and 42.

**Regarding claims 25 and 62,** Foster teaches an additional communication signal processor operatively connected to the bus structure and to a plurality of wireless communication link interfaces to thereby increase capacity (col. 10, lines 20-24). Foster fails to explicitly teach the addition of a processor to thereby establish a redundant wireless communication link. However, Examiner takes official notice that it would have been obvious to one skilled in the art to realize an additional processor can be used to create a redundant communication link, in order to accommodate an increase in information capacity.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RHONDA MURPHY whose telephone number is (571)272-3185. The examiner can normally be reached on Monday - Friday 9:00 - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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